



Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, New York 10601
Tel 914-272-3370

John F. McCann
Vice President, Nuclear Safety,
Emergency Planning and Licensing

March 30, 2012

ENOC-12-0005

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Status of Decommissioning Funding for
Plants Operated by Entergy Nuclear Operations, Inc.
For Year Ending December 31, 2011 – 10 CFR 50.75(f)(1)
Entergy Nuclear Operations, Inc.
Indian Point Nuclear Generating Stations 1, 2 and 3
Docket Nos. 50-3, 50-247 and 50-286
Pilgrim Nuclear Power Station
Docket No. 50-293

- REFERENCES: 1. NUREG-1307, "Report on Waste Burial Charges," Revision 14, dated November 2010.
2. NRC Regulatory Issue Summary 2001-07, "10 CFR 50.75(f)(1) Reports on the Status of Decommissioning Funds (Due March 31, 2001)."

Dear Sir or Madam:

10 CFR 50.75(f)(1) requires each power reactor licensee to report to the NRC by March 31 of each year the status of its decommissioning funding for each reactor or share of a reactor that it owns that is within 5 years of the end of its current operating license or where conditions have changed so that it will close within 5 years. On behalf of Entergy Nuclear Indian Point 2 LLC, Entergy Nuclear Indian Point 3 LLC and Entergy Nuclear Generation Company (Pilgrim Station), Entergy Nuclear Operations, Inc. hereby submits the information requested for power reactors operated by Entergy Nuclear Operations, Inc. The reports, provided in Attachments 1 through 6, respectively, were prepared in accordance with NUREG-1307 (Reference 1) and NRC Regulatory Issue Summary 2001-07 (Reference 2). Attachments 7 and 8 are updated site specific decommissioning cost estimates for IP 1 and 2. Attachment 9 includes Minimum Funding Assurance calculation worksheets for the plants (derived from LIC-205 Revision 4), provided for the convenience of the reviewer.

On March 21, 2011, the Nuclear Regulatory Commission issued a renewed license for the Vermont Yankee Nuclear Power Station (Vermont Yankee), so that the operating license now expires on March 21, 2032. The licensee does not have plans to close Vermont Yankee within 5 years. Accordingly, Entergy Nuclear Operations, Inc. is not including herewith a report pursuant to 10 CFR 50.75(f)(1) for Vermont Yankee.

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The aforementioned worksheets, using the December 31, 2011 trust fund balances indicate that all of the plants covered by this submittal met or exceeded the NRC's funding requirements. There are no new commitments made in this letter. If you have any questions, please contact Mr. Bryan Ford at 601-368-5516.

Sincerely,

A handwritten signature in black ink, appearing to be 'JFM' followed by a stylized flourish.

JFM/CDF/LAE

Attachments: As described above

cc: See next page.

cc: All Below with Attachments

Mr. J. A. Aluise (ENT)
Mr. M. A. Balduzzi (ECH)
Ms. W. C. Curry (ECH)
Mr. B. E. Green (TMBR)
Mr. J. F. McCann (WPO)
Mr. J. E. Pollock (IPEC)
Mr. L. Jager Smith (ECH)
Mr. R. G. Smith (PNP)

USNRC Regional Administrator, Region I
USNRC Regional Administrator, Region III
USNRC Project Manager, Indian Point 1
USNRC Project Manager, Indian Point 2
USNRC Project Manager, Indian Point 3
USNRC Project Manager, Pilgrim
USNRC Resident Inspector, Indian Point 2
USNRC Resident Inspector, Indian Point 3
USNRC Resident Inspector, Pilgrim
Michigan Department of Environmental Quality
Michigan Public Service Commission

Ms. Elizabeth Miller, Commissioner
VT Department of Public Service
120 State Street – Drawer 20
Montpelier, VT 05602

Ms. Bridget Frymire
NYS Department of Public Service
3 Empire State Plaza
Albany, NY 12223

Ms. Nancy S. Malmquist
Downs Rachlin Martin PLLC
PO Box 99
St. Johnsbury, VT 05819-0099

**Attachment 1
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 1
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Plant Name: **Indian Point Nuclear Generating Unit No. 1**

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2011\$) | \$ 476.84 million
[Note] |
| 2. Decommissioning Trust Fund Total
as of 12/31/11 | \$ 300.76 million |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on decommissioning
funds, and rates of other factors used in funding projections | 2% annual real rate
of return per 10
CFR 50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of providing
financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note: This amount is based upon total SAFSTOR expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and SAFSTOR analysis that are provided in Attachment 7. (Calculation of the NRC Minimum Amount is provided in Attachment 4.)

**Attachment 2
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 2
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Plant Name: **Indian Point Nuclear Generating Unit No. 2**

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2011\$) | \$ 715.80 million
[Note 1] |
| 2. Decommissioning Trust Fund Total
as of 12/31/11 | \$ 392.37 million
[Note 2] |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on decommissioning
funds, and rates of other factors used in funding projections | 2% annual real rate
of return per 10
CFR 50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of providing
financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note 1: This amount is based upon total SAFSTOR expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and SAFSTOR analysis provided in Attachment 8. (Calculation of the NRC Minimum Amount is provided in Attachment 4.)

Note 2: Includes provisional fund balance of \$31.05 million.

**Attachment 3
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Indian Point 3
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Plant Name: **Indian Point Nuclear Generating Unit No. 3**

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2011\$) | \$ 482.11 million
[Note] |
| 2. Decommissioning Trust Fund Total
as of 12/31/11 | \$ 521.16 million |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on decommissioning
funds, and rates of other factors used in funding projections | 2% annual real rate
of return per 10
CFR 50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of providing
financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note: Calculation of the NRC Minimum Amount is provided in Attachment 4.

**Attachment 4
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – Indian Point
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Entergy Nuclear Indian Point 2, LLC: 100% ownership interest of Indian Point 1 & 2

Entergy Nuclear Indian Point 3, LLC: 100% ownership interest of Indian Point 3

Plant Location: Buchanan, New York

Reactor Type: Pressurized Water Reactor ("PWR")

Indian Point Unit 1 Power Level: <3,400 MWt (615 MWt)

Indian Point Unit 1 PWR Base Year 1986\$: \$85,560,000

Indian Point Unit 2 Power Level: <3,400 MWt (3,216 MWt)

Indian Point Unit 2 PWR Base Year 1986\$: \$103,300,800

Indian Point Unit 3 Power Level: <3,400 MWt (3,216 MWt)

Indian Point Unit 3 PWR Base Year 1986\$: \$103,300,800

Labor Region: North

Waste Burial Facility: Generic Disposal Site

10CFR50.75(c)(2) Escalation Factor Formula:

$$0.65(L) + 0.13(E) + 0.22(B)$$

L=Labor (North)

E=Energy (PWR)

B=Waste Burial-Vendor (PWR)

Factor

2.51¹

2.58²

12.28³

PWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) =$$

4.6670889

1986 PWR Base Year \$ Escalated:

Indian Point 1: \$85,560,000 * Factor= \$399,316,126

Indian Point 2 & 3: \$103,300,800 * Factor= \$482,114,017

¹ Bureau of Labor Statistics, Series Report ID: CIU2010000000210i (4th Quarter 2011)

² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2011)

³ Nuclear Regulatory Commission: NUREG-1307 Revision 14, Table 2.1 (2010)

**Attachment 5
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Pilgrim
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Plant Name: Pilgrim Nuclear Power Station

- | | |
|--|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2011\$) | \$ 578.76 million ^[Note] |
| 2. Decommissioning Trust Fund Total
as of 12/31/11 | \$ 676.66 million |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on
decommissioning funds, and rates of other factors used in
funding projections | 2% annual real rate
of return per 10 CFR
50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of
providing financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note: Calculation of the NRC Minimum Amount is provided in Attachment 6.

**Attachment 6
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount - Pilgrim
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Entergy Nuclear Generation Co.: 100% ownership interest
Plant Location: Plymouth, Massachusetts
Reactor Type: Boiling Water Reactor ("BWR")
Power Level: <3,400 MWt (2028 MWt)
BWR Base Year 1986\$: \$122,252,000
Labor Region: North
Waste Burial Facility: Generic Disposal Site

10CFR50.75(c)(2) Escalation Factor Formula:

$$0.65(L) + 0.13(E) + 0.22(B)$$

	<u>Factor</u>
L=Labor (North)	2.51 ¹
E=Energy (BWR)	2.656 ²
B=Waste Burial-Vendor (BWR)	12.54 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 4.73412$$

1986 BWR Base Year \$ Escalated:

$$\$122,252,000 * \text{Factor} = \$578,755,570$$

¹ Bureau of Labor Statistics, Series Report ID: CIU2010000000210i (4th Quarter 2011)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2011)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 14, Table 2.1 (2010)

**Attachment 7
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

On October 23, 2008, Entergy Nuclear Indian Point 2, LLC (ENIP2) submitted a preliminary decommissioning cost analysis to the NRC in conjunction with its spent fuel management plan under 10 CFR 50.75(f)(3) and 10 CFR 50.54(bb) (Accession No. ML083040378, as supplemented by ENIP2's reply to RAIs on July 15, 2009 (Accession No. ML092050204). The preliminary decommissioning cost analysis contained separate site-specific decommissioning cost estimates for Indian Point 1 and Indian Point 2. The estimates were subsequently found to be reasonable by the NRC on March 17, 2010 (Accession No. ML100280544).

ENIP2 has determined that use of a SAFSTOR analysis shows that there is presently reasonable assurance that adequate funds will be available for the decommissioning process in compliance with NRC decommissioning funding assurance rules.

Pursuant to 10 CFR 50.75(e)(1)(i), "A licensee that has prepaid funds based on a site-specific estimate under § 50.75(b)(1) of this section may take, credit for projected earnings on the prepaid decommissioning trust funds, using up to a 2 percent annual real rate of return from the time of future funds' collection through the projected decommissioning period, provided that the site-specific estimate is based on a period of safe storage that is specifically described in the estimate." ENIP2 understands that a facility specific analysis may be used for demonstrating the adequacy of decommissioning funds, provided that "the NRC-required cost estimate for decommissioning costs as defined in 10 CFR 50.2 is equal to or greater than the amount stated in the formulas in 10 CFR 50.75(c)(1) and (2) as the basis for justifying a higher than minimum funding level." (Regulatory Guide 1.159 Rev. 2, section 1.1.1.) ENIP2 also understands that NRC should be provided the analysis, and that the analysis should include data for each year of the analysis.

The Indian Point 1 site-specific decommissioning cost estimate that was submitted was based on a period of safe storage that is specifically described in the estimate, namely storage until 2066, at which time the plant will be decommissioned and the site released for alternative use without restriction. Table 7 in the Indian Point 1 site-specific estimate (Accession No. ML083040378, page 34 of 36) provides the annual license termination phase expenditures for Indian Point 1 in 2007 dollars. Table 9-1 below escalates those 2007 dollar figures, excluding those costs expended to date and through the 3rd quarter of 2013 which are funded by operations, to 2011 dollars using escalation values obtained from data provided by IHS Global Insight. The decommissioning trust fund (DTF) ending balance is escalated each year by the 2% real growth figure allowed pursuant to 10 CFR 50.75(e)(1)(i).

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**Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Table 9-1			
NRC License Termination Cost (\$ millions)			
	2007 \$ Unit 1 Radiological	2011 \$ Unit 1 Radiological	Ending DTF Balance
2011			300.761
2012			306.776
2013	1.059	1.150	311.761
2014	4.236	4.600	313.396
2015	4.236	4.600	315.064
2016	2.656	2.888	318.478
2017	2.649	2.880	321.967
2018	2.649	2.880	325.526
2019	2.649	2.880	329.157
2020	2.656	2.888	332.852
2021	2.649	2.880	336.629
2022	2.649	2.880	340.481
2023	2.649	2.880	344.411
2024	2.656	2.888	348.411
2025	2.649	2.880	352.499
2026	2.649	2.880	356.669
2027	2.649	2.880	360.922
2028	2.656	2.888	365.253
2029	2.649	2.880	369.678
2030	2.649	2.880	374.191
2031	2.649	2.880	378.795
2032	2.656	2.888	383.483
2033	2.649	2.880	388.272
2034	2.649	2.880	393.158
2035	2.649	2.880	398.141
2036	2.656	2.888	403.216
2037	2.649	2.880	408.400
2038	2.649	2.880	413.688
2039	2.649	2.880	419.081
2040	2.656	2.888	424.575
2041	2.649	2.880	430.186
2042	2.649	2.880	435.910
2043	2.649	2.880	441.748

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**Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Table 9-1 (continued)			
NRC License Termination Cost (\$ millions)			
	2007 \$ Unit 1 Radiological	2011 \$ Unit 1 Radiological	Ending DTF Balance
2044	2.656	2.888	447.695
2045	2.611	2.839	453.810
2046	1.826	1.994	460.892
2047	1.826	1.994	468.116
2048	1.831	2.000	475.478
2049	1.826	1.994	482.994
2050	1.826	1.994	490.659
2051	1.826	1.994	498.478
2052	1.831	2.000	506.448
2053	1.826	1.994	514.583
2054	1.826	1.994	522.880
2055	1.826	1.994	531.343
2056	1.831	2.000	539.970
2057	1.826	1.994	548.776
2058	1.826	1.994	557.757
2059	1.826	1.994	566.918
2060	1.831	2.000	576.256
2061	1.826	1.994	585.787
2062	1.826	1.994	595.509
2063	1.826	1.994	605.425
2064	1.831	2.000	615.533
2065	1.826	1.994	625.850
2066	18.899	20.457	617.909
2067	68.313	73.335	556.933
2068	148.49	159.587	408.484
2069	17.216	18.613	398.042
2070	17.216	18.613	387.390
2071	17.216	18.613	376.525
2072	17.235	18.632	365.423
2073	11.4	12.299	360.432
Total	441.549	476.837	

As can be seen from the information provided in Table 9-1, the required funding for SAFSTOR decommissioning, \$476.837 million, is greater than the NRC formula amount per 10 CFR 50.75(b) and 1(c) of \$399.316 million, therefore, the site-specific analysis complies with the

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**Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

requirement from Regulatory Guide 1.159 section 1.1.1 previously discussed. The foregoing SAFSTOR analysis shows that when the December 31, 2011 DTF balance is escalated at the allowable rate and compared against the annual figures for the SAFSTOR period, that an approximately \$360.432 million surplus exists at the end of the decommissioning project. Accordingly, ENIP2 concludes that no further action is required at this time to demonstrate adequate funding assurance for decommissioning Indian Point 1.

**Attachment 8
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**Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

On August 13, 2009, Entergy Nuclear Indian Point 2, LLC (ENIP2) submitted a decommissioning funding assurance plan for Indian Point Energy Center, Unit 2 (Indian Point 2) (Accession No. ML 092260720). The plan was in response to a projected decommissioning funding shortfall for ENIP2 and the subsequent need to describe how and when the licensee intends to make adjustments to its financial assurance mechanisms. This attachment provides an update to the August 13, 2009 funding plan.

ENIP2 has determined that use of a SAFSTOR analysis shows that there is presently reasonable assurance that adequate funds will be available for the decommissioning process in compliance with NRC decommissioning funding assurance rules.

Pursuant to 10 CFR 50.75(e)(1)(i), "A licensee that has prepaid funds based on a site-specific estimate under § 50.75(b)(1) of this section may take, credit for projected earnings on the prepaid decommissioning trust funds, using up to a 2 percent annual real rate of return from the time of future funds' collection through the projected decommissioning period, provided that the site-specific estimate is based on a period of safe storage that is specifically described in the estimate." ENIP2 understands that a facility specific analysis may be used for demonstrating the adequacy of decommissioning funds, provided that "the NRC-required cost estimate for decommissioning costs as defined in 10 CFR 50.2 is equal to or greater than the amount stated in the formulas in 10 CFR 50.75(c)(1) and (2) as the basis for justifying a higher than minimum funding level." (Regulatory Guide 1.159, Rev. 2, section 1.1.1.) ENIP2 also understands that NRC should be provided the analysis, and that the analysis should include data for each year of the analysis.

On October 23, 2008, ENIP2 submitted a site specific decommissioning cost estimate to the NRC in conjunction with its preliminary decommissioning cost estimate, and spent fuel management plan under 10 CFR 50.75(f)(3) and 10 CFR 50.54(bb) (Accession No. ML083040378, as supplemented by ENIP2's reply to RAIs on July 15, 2009 (Accession No. ML092050204). That submittal contained separate site-specific decommissioning cost estimates for Indian Point 1 and Indian Point 2. The Indian Point 2 site-specific decommissioning cost estimate that was submitted was based on a period of safe storage that is specifically described in the estimate, namely storage until 2064, at which time the plant will be decommissioned and the site released for alternative use without restriction. Table 4 in the Indian Point 2 site-specific estimate (Accession No. ML083040378, page 31 of 38) provides the annual license termination phase expenditures for Indian Point 2 in 2007 dollars.

On December 10, 2010, ENIP3 submitted a site specific decommissioning cost estimate to the NRC in conjunction with its preliminary decommissioning cost estimate, and spent fuel management plan under 10 CFR 50.75(f)(3) and 10 CFR 50.54(bb) (Accession Nos. ML103540233 and ML103550608). In the ENIP3 estimate, the off-loading of the Indian Point 3 spent fuel storage pool was predicated on the availability of the Indian Point 2 spent fuel storage pool through the end of year 2023. This pool operating duration is 2½ years longer than what was assumed in the original 2007 Indian Point 2 estimate. For consistency, the 2007 Indian Point 2 estimate has been revised for the longer pool operating duration. This did not impact the

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**Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

overall Indian Point 2 estimate schedule length. The revised cost (in 2007 dollars) accounting for the extended spent fuel pool operation is shown in Table 10-1 along with the original cost.

Table 10-1 below escalates the revised 2007 dollar figures to 2011 dollars using escalation values obtained from data provided by IHS Global Insight. The decommissioning trust fund (DTF) ending balance is escalated each year by the 2% real growth figure allowed pursuant to 10 CFR 50.75(e)(1)(i).

Table 10-1 below uses the December 31, 2011 balance and indicates that there is now a \$165.028 million surplus in 2073 in decommissioning trust funds at the end of radiological decommissioning of Indian Point 2.

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**Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Table 10-1				
NRC License Termination Cost (\$ millions)				
	2007 \$ Unit 2 Radiological	2007 \$ Unit 2 Updated Radiological	2011 \$ Unit 2 Radiological	Ending DTF Balance
2011				392.365
2012				400.212
2013	11.164	11.164	12.199	396.018
2014	49.271	49.271	53.677	350.261
2015	25.307	25.307	27.439	329.828
2016	3.711	3.711	4.048	332.376
2017	3.701	3.701	4.037	334.986
2018	3.701	3.701	4.037	337.649
2019	3.701	3.701	4.037	340.365
2020	3.711	3.711	4.048	343.124
2021	3.688	3.701	4.037	345.949
2022	3.676	3.701	4.037	348.831
2023	3.676	3.701	4.037	351.771
2024	3.686	3.686	4.022	354.784
2025	3.676	3.676	4.011	357.869
2026	3.676	3.676	4.011	361.016
2027	3.676	3.676	4.011	364.225
2028	3.686	3.686	4.022	367.488
2029	3.676	3.676	4.011	370.827
2030	3.676	3.676	4.011	374.233
2031	3.676	3.676	4.011	377.707
2032	3.686	3.686	4.022	381.239
2033	3.676	3.676	4.011	384.853
2034	3.676	3.676	4.011	388.539
2035	3.676	3.676	4.011	392.299
2036	3.686	3.686	4.022	396.124
2037	3.676	3.676	4.011	400.035
2038	3.676	3.676	4.011	404.025
2039	3.676	3.676	4.011	408.095
2040	3.686	3.686	4.022	412.235
2041	3.676	3.676	4.011	416.469
2042	3.676	3.676	4.011	420.788
2043	3.676	3.676	4.011	425.192
2044	3.686	3.686	4.022	429.675
2045	3.675	3.676	4.011	434.257
2046	3.668	3.676	4.011	438.932
2047	3.668	3.675	4.010	443.700
2048	3.678	3.678	4.014	448.560

**Attachment 8
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**Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

Table 10-1 (continued)				
NRC License Termination Cost (\$ millions)				
	2007 \$ Unit 2 Radiological	2007 \$ Unit 2 Updated Radiological	2011 \$ Unit 2 Radiological	Ending DTF Balance
2049	3.668	3.668	4.003	453.529
2050	3.668	3.668	4.003	458.597
2051	3.668	3.668	4.003	463.766
2052	3.678	3.678	4.014	469.028
2053	3.668	3.668	4.003	474.406
2054	3.668	3.668	4.003	479.891
2055	3.668	3.668	4.003	485.486
2056	3.678	3.678	4.014	491.182
2057	3.668	3.668	4.003	497.003
2058	3.668	3.668	4.003	502.941
2059	3.668	3.668	4.003	508.997
2060	3.678	3.678	4.014	515.163
2061	3.668	3.668	4.003	521.464
2062	3.668	3.668	4.003	527.890
2063	3.668	3.668	4.003	534.446
2064	24.751	24.751	27.041	518.094
2065	55.625	55.625	60.490	467.966
2066	168.560	168.560	181.862	295.463
2067	71.834	71.834	77.860	223.512
2068	25.113	25.113	27.237	200.745
2069	6.046	6.046	6.526	198.234
2070	6.046	6.046	6.526	195.673
2071	6.046	6.046	6.526	193.060
2072	6.547	6.547	7.067	189.855
2073	26.485	26.485	28.624	165.028
Total	659.351	659.430	715.803	

**Attachment 8
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2011 - 10 CFR 50.75(f)(1)**

As can be seen from the information provided in Table 10-1, the required funding for SAFSTOR decommissioning, \$715.803 million, is greater than the NRC formula amount per 10 CFR 50.75(b) and 1(c) of \$482.1 million, therefore, the site-specific analysis complies with the requirement from Regulatory Guide 1.159 section 1.1.1 previously discussed. The foregoing SAFSTOR analysis shows that when the December 31, 2011 DTF balance is escalated at the allowable rate and compared against the annual figures for the SAFSTOR period, that an approximately \$165.028 million surplus exists at the end of the decommissioning project. Accordingly, ENIP2 concludes that no further action is required at this time to demonstrate adequate funding assurance for decommissioning Indian Point 2.

**Attachment 9
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets**

Plant name: **Indian Point, Unit 1**

Year of Biennial: **Month** **Day** **Year**
 1 **1** **2012**

Termination of Operation **9** **28** **2066** **SAFSTOR Site Specific**

	<u>MWth</u>	<u>1986\$</u>	ECI	Base Lx		<u>Lx</u>	Px	Fx		<u>Ex</u>		<u>Bx</u>
PWR	615	\$85,560,000	116.1	2.16	0.65	2.51	1.786	3.677	0.13	2.580	0.22	12.28

NRC Minimum: **\$399,316,126** **Site Specific:** **\$476,837,000**

<u>Licensee:</u>	<u>% Owned:</u>	<u>Amount of NRC Minimum/Site Specific:</u>	<u>Amount in Trust Fund:</u>
Entergy	100.00%	\$476,837,000	\$300,760,655

Note: See Attachment 7 for adequacy of the trust fund

**Attachment 9
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets**

Plant name: Indian Point, Unit 2

Year of Biennial: **Month** **Day** **Year**
 1 **1** **2012**

Termination of Operation **9** **28** **2064** **SAFSTOR Site Specific**

	<u>MWth</u>	<u>1986\$</u>	ECI	Base Lx		<u>Lx</u>	Px	Fx		<u>Ex</u>		<u>Bx</u>
PWR	3216	\$103,300,800	116.1	2.16	0.65	2.51	1.786	3.677	0.13	2.580	0.22	12.28

NRC Minimum: **\$482,114,017** **Site Specific:** **\$715,803,000**

<u>Licensee:</u>	<u>% Owned:</u>	<u>Amount of NRC Minimum/Site Specific:</u>	<u>Amount in Trust Fund:</u>
Entergy	100.00%	\$715,803,000	\$392,365,123

Note: See Attachment 8 for adequacy of the trust fund

**Attachment 9
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets**

Plant name: Indian Point, Unit 3

	Month	Day	Year
Year of Biennial:	1	1	2012
Termination of Operation	12	12	2015

	<u>MWth</u>	<u>1986\$</u>	<u>ECI</u>	<u>Base Lx</u>		<u>Lx</u>	<u>Px</u>	<u>Fx</u>		<u>Ex</u>		<u>Bx</u>
PWR	3216	\$103,300,800	116.1	2.16	0.65	2.51	1.786	3.677	0.13	2.580	0.22	12.28

NRC Minimum: \$482,114,017

Site Specific:

<u>Licensee:</u>	<u>% Owned:</u>	<u>Amount of NRC Minimum/Site Specific:</u>	<u>Amount in Trust Fund:</u>
Entergy	100.00%	\$482,114,017	\$521,161,624

**Step 1:
Earnings Credit:**

<u>Trust Fund Balance:</u>	<u>Real Rate of Return per</u>	<u>Years Left in License</u>	<u>Total Real Rate of</u>	<u>Total Earnings:</u>	
\$521,161,624	2%	3.95	1.08129	\$563,528,154	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

<u>Value of Annuity per year</u>	<u>Real Rate of Return per</u>	<u>Years of Annuity:</u>	<u>Total Annuity:</u>
\$0	2%	0	\$0

Step 3:

Decom Period:

<u>Total Earnings:</u>	<u>Real Rate of Return per</u>	<u>Decom Period:</u>	<u>Total Real Rate of</u>	<u>Total Earnings for Decom:</u>	
\$563,528,154	2%	7	0.14869	\$41,894,280	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:

\$605,422,433

Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$123,308,417 to NRC minimum
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**Attachment 9
ENOC-12-0005**

**Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets**

Plant name:

Pilgrim

	Month	Day	Year
Year of Biennial:	1	1	2012
Termination of Operation	6	8	2012

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
BWR	2028	\$122,252,000	116.1	2.16	0.65	2.51	1.786	3.677	0.13	2.656	0.22	12.54

NRC Minimum:

\$578,755,570

Site Specific:

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$578,755,570	\$676,657,808

Step 1:

Earnings Credit:

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$676,657,808	2%	0.44	1.00867	\$682,523,230	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

Step 3:

Decom Period:

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	
\$682,523,230	2%	7	0.14869	\$50,740,711	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$733,263,941	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	154,508,371	to NRC minimum
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